

**Leslie Taylor
Associates**

RECEIVED

'JUL - 8 1992

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Telecommunications Consultants
6800 Carlynn Court
Bethesda, Maryland, 20817-4302
Tel: (301) 229-9341
Fax: (301) 229-3148

July 8, 1992

Ms. Donna Searcy
Secretary
Federal Communications Commission
Room 222
1919 M Street, N.W.
Washington, D.C. 20554

**ORIGINAL
FILE**

Re: ET Docket No. 92-9

Dear Ms. Searcy:

Attached are an original and the required copies of the "Reply Comments" of Loral Qualcomm Satellite Services, Inc. on "Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies".

Please contact the undersigned should you have any questions.

Sincerely yours,

Leslie A. Taylor

No. of Copies rec'd
List A B C D E

0 + 5

RECEIVED

JUL - 8 1992

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of:

Redevelopment of Spectrum to
Encourage Innovation in the
Use of New Telecommunications
Technologies

)
)
)
)
)
)

ET Docket No. 92-9

REPLY COMMENTS OF LORAL QUALCOMM SATELLITE SERVICES, INC.

Linda K. Smith, Esq.
Robert M. Halperin, Esq.
William B. Wallace, Esq.
CROWELL & MORING
1001 Pennsylvania Avenue, N.W.
Washington, D.C. 20004
(202) 624-2500

Leslie A. Taylor, Esq.
LESLIE TAYLOR ASSOCIATES
6800 Carlynn Court
Bethesda, MD 20817-4302
(301) 229-9341

Attorneys for Loral Qualcomm
Satellite Services, Inc.

July 8, 1992

RECEIVED

JUL - 8 1992

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of:)
)
Redevelopment of Spectrum to) ET Docket No. 92-9
Encourage Innovation in the)
Use of New Telecommunications)
Technologies)

REPLY COMMENTS OF LORAL QUALCOMM SATELLITE SERVICES, INC.

Loral Qualcomm Satellite Services, Inc. ("LQSS"), by its attorneys, hereby respectfully submits its Reply Comments on the Notice of Proposed Rule Making ("Notice") in the above-referenced proceeding, 7 FCC Rcd 1542 (1992) ("Emerging Technologies Proceeding"). LQSS is an applicant for authority to construct a low-earth orbit satellite system providing voice, data and radio-determination satellite services (RDSS) in the 1610-1626.5 MHz and 2483.5-2500 MHz bands. LQSS has filed a petition for rulemaking with regard to modifications to the Commission's rules governing use of the RDSS bands and a request for pioneer's preference for the various innovations to be used in its low-earth orbit satellite system.¹

The focus of these Reply Comments is the proposed allocation for the United States by the Commission, within the Emerging Technologies proceeding, of the bands which were allocated for use by Mobile-Satellite Service at the 1992 World Administrative Radio

¹ See, Application File Nos. 19-DSS-P-91(48), CSS-91-014, filed June 3, 1991, Rulemaking Petition of LQSS, filed November 4, 1991, Request for Pioneer's Preference, PP-31, filed November 4, 1991, Supplement, filed June 12, 1992.

Conference.² In addition, these Reply Comments address the initial Comments of AMSC Subsidiary Corporation in this proceeding.

I. The Commission should allocate the 1930-1990 MHz, 2120-2150 MHz and 2160-2200 MHz Bands for Mobile Satellite Service

The 1992 World Administrative Radio Conference, recognizing the importance of accommodating growth in the use of mobile-satellites, those operating in geostationary as well as low-earth orbit, adopted the following allocations for mobile-satellite service, within the 1850-2200 MHz band:

WARC-92 MSS Allocations in 1850-2200 MHz Band

<u>Band</u>	<u>Path</u>	<u>Regions</u>	<u>Date</u>
1930-1970 MHz*	Earth to Space	Region 2	1993
1970-1980 MHz	Earth to Space	Region 2	2005
		U.S.	1996
1980-2010 MHz	Earth to Space	Global	2005
		U.S.	1996
2120-2160 MHz*	Space to Earth	Region 2	1993
2160-2170 MHz	Space to Earth	Region 2	2005
		U.S.	1996
2170-2200 MHz	Space to Earth	Global	2005
		U.S.	1996

* Secondary

² Addendum and Corrigendum to the Final Acts of the World Administrative Radio Conference (WARC-92), International Telecommunications Union (Malaga-Torremolinos, 1992), ("Final Acts").

Of these bands, 1930-1990 MHz (Earth-to-space), 2120-2150 MHz (space-to-Earth), and 2160-2200 MHz (space-to-Earth) are under consideration for new technologies in this proceeding. These bands should be allocated, within the United States, to mobile-satellite service, in accordance with the actions of WARC-92. LQSS believes that growth in the use of all types of mobile-satellite systems will necessitate substantial additional spectrum in the 1-3 GHz range by 2000-2005. This timeframe is consistent with the 10-15 year transition period for the Emerging Technologies frequencies, as outlined by the Commission.³

Operational mobile satellite systems as well as proposed systems will utilize increasing amounts of spectrum. Geostationary systems include those of INMARSAT, AMSC, TMI (Canada), Mexico's Solidaridad, Brazil, EUTELSAT, Japan and others. Non-geostationary systems proposed include those of LQSS, Motorola Satellite Communications, Inc., Constellation Communications, Inc., Ellipsat Corp., TRW Inc., as well as those of Russia and INMARSAT.

The developing need for additional MSS spectrum is readily apparent. The Commission, within the context of the Emerging Technologies proceeding, has identified the role of mobile satellites in meeting mobile communications needs.⁴ WARC-92 provided for substantial additional allocations for mobile-satellite service, as well as for CCIR studies to address the role of satellites in mobile communications.⁵ The CCIR has also recognized that satellites will be critical to the provision of mobile services.⁶ One of the points included in a CCIR draft new recommendation is "that the spectrum used for the satellite network be as close as possible to that of the terrestrial networks, particularly with respect to the Earth-to-space frequencies of the

³ Emerging Technologies Notice, at para. 24.

⁴ Id., at para. 4.

⁵ See, Resolution com 4/4, WARC-92 Final Acts, supra.

⁶ See, Satellite Operation Within FPLMTS (FPLMTS.SAT), Draft New Recommendation (Doc. 8/53), CCIR Task Group 8-1, January 30, 1992.

satellite network."⁷ A recent meeting of the FPLMTS working group on satellites was attended by representatives of LQSS, AMSC, Motorola and INMARSAT, as well as representatives from a number of countries looking at the future integration of mobile satellite and terrestrial mobile communications systems. This integration is projected to occur in the 2000 - 2005 timeframe.⁸

The Commission, as it addresses the need to provide for new mobile services in the twenty-first century, should ensure that the satellite component, provided by either geostationary or non-geostationary systems, has appropriate spectrum allocations.

II. The RDSS Bands Should Be Utilized for the First Generation Non-Geostationary RDSS/MSS Systems

While the Emerging Technologies proceeding can and should address allocations for future mobile satellite systems, the Commission, within the pending proceeding addressing applications for low-earth orbit RDSS/MSS service, must maintain its focus on the RDSS bands. Consequently, the Commission should disregard AMSC's comments suggesting that the Emerging Technology bands be used for first generation LEO systems.

In its comments, AMSC claims that non-geostationary RDSS/MSS systems cannot operate feasibly in the RDSS bands⁹ and that "the emerging technologies bands are better suited to accommodating" the non-geostationary RDSS/MSS systems, leaving the RDSS uplink band for

⁷ Id., at p. 2.

⁸ See, Spectrum Identification and Availability for MSS and FPLMTS Satellite Component Services, submitted to CCIR Task Group 8/1, Working Group 5, by INMARSAT.

⁹ See, AMSC Comments, p. 4, wherein AMSC states, "the serious interference potential these non-geostationary systems pose to existing users of the RDSS bands makes it unlikely that any will be able to gain access to enough spectrum in the RDSS bands to viably support the systems."

use by AMSC.¹⁰ These statements are based on a flawed analysis, as has been demonstrated by LQSS and other applicants for non-geostationary satellite RDSS bands.¹¹

Within ET Docket No. 92-28, the proceeding addressing a pioneer's preference for LEO RDSS/MSS proposals, as well as in comments on the pending LEO RDSS/MSS applications¹², LQSS has demonstrated that the RDSS frequency bands are the most appropriate for the first generation of LEO RDSS/MSS systems.¹³ LQSS, in particular, in its application for a low-earth orbit satellite system providing voice, data and RDSS service, provided extensive analysis demonstrating the feasibility of sharing in this band.¹⁴

AMSC is attempting to utilize the Emerging Technologies proceeding to further its application for the RDSS L-band. Its arguments here are totally self-serving of that application. As LQSS has previously demonstrated, such use of the RDSS bands by AMSC would provide no additional service to the public, could not provide service to handheld units and would be totally inconsistent with the outcome of WARC-92.¹⁵ AMSC has failed to demonstrate a need

¹⁰ AMSC Comments, at p. 7.

¹¹ See, in addition to LQSS Comments of January 31, 1992, March 27, 1992 and June 24, 1992, the Comments filed on these dates by TRW Inc., Constellation, and Ellipsat Corp.

¹² See, Consolidated Opposition of Loral Qualcomm Satellite Services, Inc. January 31, 1992, and Comments of LQSS on Motorola Petition for Expedited Action, filed June 24, 1992.

¹³ See Comments of LQSS, AMSC, TRW Inc., Constellation and Ellipsat Corporation filed June 24, 1992, opposing Motorola's proposal, as contained in Motorola Petition for Expedited Action, filed June 9, 1992, that the other LEO RDSS/MSS applicants use portions of the 1675-1710 MHz and 1599.5-1610 MHz bands.

¹⁴ See, Appendix 6 of the LQSS application, filed June 3, 1992. See also, Consolidated Opposition of LQSS, filed January 31, 1992 and Consolidated Reply Comments, filed March 27, 1992.

¹⁵ See, LQSS Petition to Deny Application of AMSC, December 13, 1991. LQSS Consolidated Comments, January 27, 1992, LQSS Consolidated Reply Comments, March 27, 1992 pp. 20-32 and Technical Appendix, Section 5. AMSC's application proposes an uplink e.i.r.p. grossly in excess of that provided for in the WARC-92 allocations of the 1610 - 1626.5

for additional spectrum at present, and reallocation of the RDSS spectrum to AMSC would result in inefficient use of spectrum. As the Commission recognizes, the spectrum under consideration in the Emerging Technologies proceeding is needed for future growth of mobile services rather than accommodation of current requirements. The current LEO RDSS applicants should not be forced into other spectrum which is needed for future growth of mobile satellite systems while present needs can be accommodated in the RDSS band.

Furthermore, as the Commission and numerous commenting parties have indicated, the frequencies under consideration in the Emerging Technologies docket are not likely to be fully available for new mobile services until the end of the 1990s or later. Therefore, reallocation of spectrum in the 1850 - 2200 MHz band for first generation LEO RDSS/MSS use would delay this important new service.

MHz for mobile-satellite services.

III. Conclusion

LQSS supports the allocation of 1930-1990 MHz (Earth-to-space), 2120-2150 MHz (space-to-Earth), and 2160-2200 MHz (space-to-Earth) for Mobile-satellite service, as provided in the WARC-92 Final Acts. However, these bands should not be considered for first generation LEO RDSS/MSS systems as suggested by AMSC.

Respectfully submitted,

Loral Qualcomm Satellite Services, Inc.
By: Linda K. Smith
Linda K. Smith, Esq.
Robert M. Halperin, Esq.
William D. Wallace, Esq.
Crowell & Moring
1001 Pennsylvania Avenue N.W.
Washington, D.C. 20004-2505
(202) 624-2500

By: Leslie A. Taylor
Leslie A. Taylor, Esq.
Leslie Taylor Associates
6800 Carlynn Court
Bethesda, MD 20817-4302
(301) 229-9341

July 8, 1992

CERTIFICATE OF SERVICE

I, Andrew Taylor, hereby certify that I have on this 8th day of July 1992, caused to be sent copies of the foregoing "Reply Comments of Loral Qualcomm Satellite Services, Inc. on Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies" by U.S. mail, postage prepaid, to the following:

Gary M. Epstein, Esq.
James F. Rogers, Esq.
Kevin C. Boyle, Esq.
Latham & Watkins
1001 Pennsylvania Avenue N.W.
Suite 1300
Washington, D.C. 20004-2504

Robert A. Mazer, Esq.
Albert Shuldiner, Esq.
Nixon, Hargrave, Devans & Doyle
One Thomas Circle N.W.
Suite 800
Washington, D.C. 20005

Jill Abeshouse Stern, Esq.
Shaw, Pittman, Potts &
Trowbridge
2300 N Street N.W.
Washington, D.C. 20037

Philip L. Malet, Esq.
Steptoe & Johnson
1330 Connecticut Avenue, N.W.
Washington, D.C. 20036

Veronica Haggart, Esq.
Vice President & Director
Regulatory Affairs
Motorola, Inc.
1350 I Street N.W.
Washington, D.C. 20005

Norman P Leventhal, Esq.
Raul Rodriguez, Esq.
Stephen D. Baruch, Esq.
Leventhal, Senter & Lerman
2000 K Street N.W.
Suite 600
Washington, D.C. 20006

Bruce Jacobs, Esq.
Glenn Richards, Esq.
Fisher, Wayland, Cooper
& Leader
1255 23rd St. N.W.
Suite 800
Washington, D.C. 20037

Lon Levin, Esq.
Vice President and Regulatory Counsel
Leslie A.L. Borden, Esq.
Vice President and General Counsel
AMSC
1150 Connecticut Avenue N.W.
4th Floor
Washington, D.C. 20036

Dr. Robert L. Riemer
Committee on Radio Frequencies
HA-562
National Research Council
2101 Constitution Ave. N.W.
Washington, D.C. 20418

Victor J. Toth, Esq.
Law Offices of Victor J. Toth
2719 Soapstone Dr.
Reston, VA 22091

Hollis G. Duesing, Esq.
The Association of American Railroads
50 F Street N.W.
Washington, D.C. 20001

Richard Barth
U.S. Department of Commerce
NOAA
Office of Spectrum Management
Room 3332 FOB #4
Washington, D.C. 20233

Winston E. Himsworth
President, Tel/Logic
51 Shore Drive
Plandome, NY 11030

T. Peter Ruane
President & CEO
ARTBA
501 School St. S.W.
Eighth Floor
Washington, D.C. 20024-2713

Lisa M. Zaina, Esq.
OPASTCO
2000 K Street N.W.
Suite 205
Washington, D.C. 20006

Cheryl Lynn Schneider, Esq.
Communications Satellite Corporation
950 L'Enfant Plaza, S.W.
Washington, D.C. 20024

William K. Keene, Esq.
Winston & Strawn
1400 L Street N.W.
Washington, D.C. 20005

James G. Ennis, Esq.
Fletcher, Heald & Hildreth
1225 Connecticut Ave. N.W.
Suite 400
Washington, D.C. 20036

William Hatch
William Gamble
Richard Parlow
U.S. Department of Commerce
NTIA
14th & Constitution Ave. N.W.
Washington, D.C. 20230

Lawrence L. Green
Manager, Power System Services
Dept. Water & Power City of Los Angeles
P.O. Box 111
Los Angeles, CA 90051-0100

Paul J. Sinderbrand, Esq.
Keck, Mahim & Cate
1201 New York Ave. N.W.
Penthouse
Washington, D.C. 20005-3919

Steven Sivitz
Program Manager, Wireless Systems
ROLM Systems
4900 Old Ironsides Drive
P.O. Box 58075
Santa Clara, CA 95052-8075

Richard H. Bremer
President & CEO
Southwestern Electric Power Co.
428 Travis St.
Shreveport, LA 71101

George W. Toyne
Executive Vice President
Corn Belt Power Coop.
1300 13th Street North
P.O. Box 508
Humbolt, IA 50548-0508

Coleman Conrad
Deputy City Manager
City of San Diego
202 C Street
San Diego, CA 92101

Lawrence A. Gollomp, Esq.
Asst. General Counsel
Department of Energy
1000 Independence Ave. S.W.
DOE Mail Stop GC-33
Room 6D--033
Washington, D.C. 20585

Richard M. Stokes, Esq.
Manager, Government Affairs
Atlantic Electric
1199 Black Horse Pike
Pleasantville, NJ 08232

Dr. Michael C. Trahos
Public Safety Plan Review Committee
4600 King Street
Suite 4E/5N
Alexandria, VA 22302

Stephen A. Hildebrandt, Esq.
Westinghouse Broadcasting Company
400 North Capital Street, N.W.
Suite 550
Washington, D.C. 20001-1511

Don O. Tellis
Manager, Communication Systems
Arizona Public Service Company
P.O. Box 53999
Phoenix, Arizona 85072-3999

M.J. Macdonald
Acting Superintendent
Seattle City Light
1015 Third Avenue
Seattle, WA 98104-1198

Michael C. Regulinski, Esq.
Centerior Energy
P.O. Box 94661
Cleveland, OH 44101-4661

Kevin Kelly
Office of Domestic & Intn'l. Energy
1000 Independence Ave. S.W.
DOE Mail Stop EP (PE-51), Room 7H-075
Washington, D.C. 20585

Thomas L. Layman
Communications Superintendent
SHO-ME Power Electric Coop.
P.O. Box D
Marshfield, MO 65706

Robert L. McPhail
General Manager
Basin Electric Power Coop.
1717 East Interstate Ave.
Bismark, North Dakota 58501-0564

Donal F. McCarthy, Esq.
Con Edison
4 Irving Place
New York, NY 10003

George Shannon
President, Board of Directors
Tarrant County Water Control
P.O. Box 4508
Fort Worth, TX 76164-0508

Lawrence E. Sarjeant, Esq.
Randall S. Coleman, Esq.
1020 19th Street N.W.
Suite 700
Washington, D.C. 20036

Thomas Gutierrez, Esq.
David A. LaFuria
Lukas, McGowan, Nace &
Gutierrez, Chartered
1819 H Street N.W.
7th Floor
Washington, D.C. 20006

Stephan P. Carrier
Vice President & Secretary
Hughes Network Systems, Inc.
11717 Exploration Lane
Germantown, MD 20874

Daymon G. Barton
Manager Telecommunications Services
KAMO Electric Coop., Inc.
P.O. Box 577
Vinita, OK 74301

Terry G. Mahn, Esq.
Fish & Richardson
601 13th St. N.W.
Washington, D.C. 20005

Arvid G. Larson, Ph.D.
Vice President
IEEE-USA
1828 L Street N.W.
Suite 1202
Washington, D.C. 20036-5104

Byron R. Bergman
Asst. Systems Engineering Manager
Tacoma Public Utilities
3628 South 35th Street
P.O. Box 11007
Tacoma, WA 98411

James F. Rogers, Esq.
Gregory P. Broome
Latham & Watkins
1001 Pennsylvania Ave. N.W.
Suite 1300
Washington, D.C. 20005-2404

William B. Barfield
Bellsouth Corp.
1155 Peachtree St. N.E.
Suite 1800
Atlanta, GA 30367-6000

Robert S. Foosaner, Esq.
Lawrence R. Krevor, Esq.
1450 G Street N.W.
Washington, D.C. 20036

Nicholas W. Hetman, Esq.
Texas Gas Transmission Corp.
3800 Frederica Street
Owensboro, KY 42301

Lloyd D. Huffman
Huffman Communications
2829 W. 7th Ave.
Box 1753
Corsicana, TX 75151

David C. Jatlow, Esq.
Young & Jatlow
2300 N Street N.W.
Suite 600
Washington, D.C. 20037

Mark W. Johnson, Esq.
Michael Rosw, Esq.
51 West 52nd St.
New York, NY 10019

James D. Ellis, Esq.
William J. Free, Esq.
Mark P. Royer, Esq.
One Bell Center, Rm 3524
St. Louis, MO 63101-3099

Michael Altschul, Esq.
Jack W. Whitley, Esq.
1133 21st St. N.W.
Suite 300
Washington, D.C. 20036

Daniel E. Smith, Esq.
Gurman, Kurtis, Blask
and Freedman, Chartered
1400 16th St. N.W. Suite 500
Washington, D.C. 20036

David Cosson, Esq.
L. Marie Guillory
2626 Penn. Ave. N.W.
Washington, D.C. 20037

David R. Mason
MCI Corp.
1801 Penn. Ave. N.W.
Washington, D.C. 20006

June Walsh
Cal Autofone
Radio Elect. Products
1615 Highland Ave.
Eureka, CA 95501

Daniel L. Bart, Esq.
1850 M St. N.W.
Suite 1200
Washington, D.C. 20036

Harry A. Haycock
Senior Vice President
PacifiCorp
2300 One Utah Center
Salt Lake City, Utah 84140

H. Mark Gibson
Senior Engineer, COMSEARCH
11720 Sunrise Valley Drive
Reston, VA 22091

Edward E. Jungerman
President, IMPULSE
12720 Hillcrest Rd.
Suite 1020
Dallas, TX 75230

Martin T. McCue, Esq.
Linda Kent, Esq.
900 19th Street N.W.
Suite 800
Washington, D.C. 20006-2105

Robert B. Kelly, Esq.
1920 N St. N.W.
Suite 660
Washington, D.C. 20036

Josephine S. Trubek, Esq.
Rochester Telephone Corp.
180 South Clinton Ave.
Rochester, NY 14646

Benn Kobb
WINForum
1155 Conn. Ave. N.W.
Suite 500
Washington, D.C. 20036

George Calhoun
Senior Vice President
IMM
2200 Renaissance Blvd.
Suite 105
King of Prussia, PA 19406

Christopher D. Imlay, Esq.
Booth, Freret & Imlay
1233 20th St. N.W.
Suite 204
Washington, D.C. 20036

Arthur Blooston, Esq.
John A. Pendergast, Esq.
Blooston, Mordkofsky, Jackson
and Dickens
2120 L Street N.W.
Suite 300
Washington, D.C. 20037

Richard D. Lawson
Director, Regulatory Affairs
Sprint
1850 M Street N.W.
11th Floor
Washington, D.C. 20036

Harold R. Morrison
Valero Transmission Co.
P.O. Box 500
San Antonio, TX 78292-0500

Thomas Ohlsson
Product Manager
Spectralink Corp.
1650 38th St.
Boulder, CO 80301

Eric J. Schimmel
Vice President, TIA
2001 Penn. Ave. Suite 800
Washington, D.C. 20006-1813

Chandos A. Rypinski
LACE, Inc.
921 Transport Way
Petaluma, CA 94954

Steven R. Rivkin, Esq.
1401 New York Ave. N.W.
Washington, D.C. 20005

Jane E. Genster, Esq.
Washington, Counsel
National Broadcasting Co., Inc.
1331 Penn. Ave. N.W.
Suite 930 North
Washington, D.C. 20004

J. Michael Peters
Associate General Counsel
Kansas Power & Light Co.
P.O. Box 889
818 Kansas Ave.
Topeka, Kansas 66601

Frederick J. Day, Esq.
Keller & Heckman
1001 G St. N.W.
Suite 500 West
Washington, D.C. 20001

John G. Lamb, Esq.
Senior Counsel
2221 Lakeside Blvd.
Richardson, TX 75082

Richard Rubin, Esq.
Fleischman & Walsh
1400 16th St. N.W.
Suite 600
Washington, D.C. 20036

Robert R. Carey
President & CEO
Central Power & Light Co.
539 North Carancahua St.
Corpus Christi, TX 78401

Jeffrey L. Clarke
Counsel, American Gas Association
1515 Wilson Blvd.
Arlington, VA 22209

William F. Adler
Executive Director
Pacific Telesis
1275 Penn. Ave. N.W.
Suite 400
Washington, D.C. 20004

Herbert D. Coss, Jr.
Interconnection & Transmission
Lexington & Liberty Streets
P.O. Box 1475
Baltimore, MD 21203

Ellen S. Deutsch
Senior Counsel
Citizens Utilities of California
P.O. Box 496020
Redding, CA 96049-6020

Charles F. Wright
Vice President
CENTEL Corp.
8725 Higgins Road
Chicago, IL 60631

Carolyn C. Hill
Alltel Service Corp.
1710 Rhode Island Ave. N.W.
Suite 1000
Washington, D.C. 20036

John E. McNulty
President & CEO
ROSE Communications, Inc.
2390 Walsh Ave.
Santa Clara, CA 95051

JoAnne G. Bloom, Esq.
30 South Wacker Dr.
Suite 3900
Chicago, IL 60606

Jeffrey L. Sheldon
Utilities Telecom. Council
1140 Conn. Ave. N.W.
Suite 1140
Washington, D.C. 20036

Sambran Sandoval
Nat. Spectrum Managers Assoc., Inc.
P.O. Box 8378
Denver, CO 80201

Mary E. Landergan
Capital Cities/ABC, Inc.
77 West 66th St.
New York, NY 10023

John D. Lane, Esq.
Robert M. Gurss, Esq.
Wilkes, Artis, Hedrick & Lane
1666 K St. N.W.
Washington, D.C. 20006

Thomas J. Casey, Esq.
Skadden, Arps, Slate,
Meagher & Flom
1440 New York Ave. N.W.
Washington, D.C. 20005

National Association of Broadcasters
1771 N St. N.W.
Washington, D.C. 20036

Cable-Satellite Public Affairs
Network
400 North Capital Street
Suite 650
Washington, D.C. 20001

Turner Broadcasting System, Inc.
820 1st St. N.E.
Washington, D.C. 20002

Laura H. Philips, Esq.
Dow, Lohnes & Albertson
1255 23rd St. N.W.
Suite 500
Washington, D.C. 20037

George Y. Wheeler
Koteen & Naftalin
1150 Conn. Ave. N.W.
Washington, D.C. 20036

Mark R. Hamilton, Esq.
McCaw Cellular Communications, Inc.
1250 Conn. Ave. N.W.
Suite 401
Washington, D.C. 20036

Bob Bergland
Executive Vice President
National Rural Electric Coop.
1800 Mass. Ave. N.W.
Washington, D.C. 20036-1883

Raymond G. Bender, Jr., Esq.
Dow, Lohnes & Albertson
1255 23rd St. N.W.
Suite 500
Washington, D.C. 20037

Radio-TV News Directors Association
1000 Conn. Ave. N.W.
Washington, D.C. 20036

Assoc. for Maximum Service TV, Inc.
1400 16th St. N.W.
Washington, D.C. 20036

Thomas J. Keller, Esq.
Verner, Liippfert, Bernard,
McPherson and Hand
901 15th St. N.W.
Suite 700
Washington, D.C. 20005

Michael D. Kennedy
Director, Regulatory Relations
Motorola Inc.
1350 I Street, N.W. Suite 400
Washington, D.C. 20005

A. Lawrence Ralph
Central Maine Power
General Office, Edison Dr.
Augusta, MA 04336

Jonathan D. Blake, Esq.
Covington & Burling
1201 Penn. Ave. N.W.
P.O. Box 7566
Washington, D.C. 20044

G. Patrick Flowers, Esq.
Northern Border Pipeline Co.
P.O. Box 1188
Houston, Texas 77252-1188

Thomas A. Stroup
President, Telocator
1019 19th St. N.W.
Suite 1100
Washington, D.C. 20036

Henry Goldberg
Goldberg & Spector
1229 19th St. N.W.
Washington, D.C. 20036

Arthur K. Neill
Executive Vice President
Utility Services
40 East Broadway
Butte, MT 59701

Donald L. Schilling
President
85 Old Shore Rd.
Suite 200
Port Washington, NY 11050

Howard Oringer
Chairman & CEO
600 Montgomery St.
San Francisco, CA 94111

William K. Drummond
Manager, Public Power Council
500 N.E. Multnomah
Suite 729
Portland, OR 97232

Stephen Ruud, Counsel
Public Utilities Commission of
State of Colorado
Logan Tower, OL-2
1580 Logan St.
Denver, CO 80203

Paul Taft, President
Texas Wired Music, Inc.
4804 San Felipe Rd.
Houston, TX 77056

Barry Lambergman
Fletcher, Heald & Hildreth
1225 Conn. Ave. N.W.
Suite 400
Washington, D.C. 20036-2679

Edward R. Wholl
Katherine S. Abrams
Nynex Mobile Communications Co.
2000 Corporate Dr.
Orangeburg, NY 10962

Thomas J. Sugrue
U.S. Dept. of Commerce
NTIA
Room 4713
14th & Constitution Ave. N.W.
Washington, D.C. 20230

Walter Sonnenfeldt
Executive Director
1600 Wilson Blvd.
Suite 500
Arlington, VA 22209

Jan J. Sagett, Esq.
Ginsburg, Feldman & Bress
1250 Conn. Ave. N.W.
Washington, D.C. 20036

Robert J. Miller, Esq.
1601 Elm St.
Suite 3000
Dallas, TX 75201

American Public Power Assoc.
2301 M St. N.W.
Suite 300
Washington, D.C. 20037

Randolph J. May, Esq.
Sutherland, Asbill & Brennan
1275 Penn. Ave. N.W.
Washington, D.C. 20004

Francine J. Berry, Esq.
295 North Maple Ave.
Room 3224J1
Basking Ridge, NJ 07920

Andrew D. Lipman, Esq.
Swidler & Berlin
3000 K St. N.W.
Suite 300
Washington, D.C. 20007-3851

Richard Brass, President
ORACLE Data Publishing, Inc.
500 108th Ave. N.E.
Suite 1750
Bellvue, WA 98004-5500

D.W. Bateman
Salt River Project
P.O. Box 52025
Phoenix, Arizona 85072-2025

Charles C. Jones, Jr.
Assoc. of Electric Coop.
P.O. Box 2340
4201 Dominion Blvd.
Suite 101
Glen Allen, VA 23058-2340

John P. Bankson, Jr., Esq.
Hopkins & Sutter
888 16th St. N.W.
Washington, D.C. 20006

Donald C. Loughry
Chairman, IEEE 802
Hewlett-Packard Co.
19420 Homestead Rd.
MS: 43UC
Cupertino, CA 95014

Brice L. Clark
Hewlett-Packard Co.
8000 Foothills Blvd.
Roseville, CA 95678

Douglas Smith, President
OMNIPOINT Corp.
7150 Campus Dr.
Colorado Springs, CO 80920

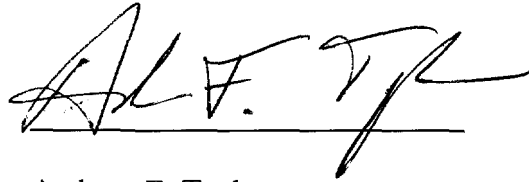
Tom W. Davidson, Esq.
Akin, Gump, Hauer & Feld, L.L.P.
1333 New Hampshire Ave. N.W.
Suite 400
Washington, D.C. 20036

Stephen J. Miller
Sunflower Electric Power Corp.
P.O. Box 980
301 West 13th St.
Hays, Kansas, 67601

Vernon O. Carlson
Cooperative Power Association
14615 Lone Oak Road
Eden Prairie, MN 55344-2287

William A. Merrill
Vice President, Operations
Nebraska Public Power District
P.O. Box 499
Columbus, Nebraska 68602-0499

L.R. Gunnoe
President
Idaho Power
P.O. Box 70
Boise, ID 83707

A handwritten signature in black ink, appearing to read "A.F. Taylor", written over a horizontal line.

Andrew F. Taylor